Smart Life Forum

www.smartlifeforum.org

NEXT MEETING: Thursday, December 16, 2010, at 7pm

Gerald Reaven, MD

on

Insulin Resistance is the Link between Obesity and Metabolic Diseases

SMART LIFE HOLIDAY POTLUCK, organized by Anna Coulter

This year again, we would like to open our December SLF Meeting with a really healthy potluck featuring raw food dishes and organic ingredients.

So please bring your favorite raw food dish. Or, if preparing dishes is not your thing, please bring a bottle of Martinelli sparkling apple cider or some organic vegetable juice. Some simple things to bring that require little or no preparation include: organic apples, pears, persimmons, sliced mango, grapes, raw nuts and seeds, cucumbers, broccoli, bell pepper, and celery sticks with raw hummus.

Please: No sugar or artificial sweeteners, no gluten, no dairy or meat products, no chocolate and no alcohol. Instead, let's make this holiday feast a fun challenge with organic whole foods like those above.

Looking for more inspiration? Click the link below!

http://www.smartlifeforum.org/2009/12/recipes.pdf

Let's be smart and celebrate the holiday season in a healthy way!

For those who cannot attend we will have live streaming at

http://SmartLifeForum.org/live

FMBR.org (Foundation for Mind Being Research) meetings:

December 11: **Holiday Party** for FMBR members.
January 28: **Dr. Bernie Haisch** on "The Purpose-Guided Universe: Believing in Einstein, Darwin and God".
February 25: **Dr. Beverly Rubik** presents "Studies on Energized Drinking Water and Diet with Live Blood Analysis".

See FMBR.org for more details.

Presentation Location:

Cubberley Community Ctr.
Room H1

4000 Middlefield Rd.

Palo Alto, CA

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Meet Gerald Reaven, MD,

Professor of Medicine (Active Emeritus), Stanford University School of Medicine

Dr. Gerald M. Reaven received his M.D. degree from the University of Chicago in 1953, and postgraduate training at the University of Chicago, University of Michigan, and Stanford. He joined the Stanford University School of Medicine faculty in 1960, where he has remained.

During his years on the Stanford faculty, Dr. Reaven has served as Head of the Division of Endocrinology and Metabolic Diseases (1974-1977), the Division of Gerontology (1977-1990), and the Division of Endocrinology, Gerontology, and Metabolism (1990-1995). Dr. Reaven became emeritus in 1995, but remains active in teaching and research. His most recent appointment in the Division of Cardiovascular Medicine reflects the broad range of his research interests.

Dr. Reaven has published over 500 peer-revised research articles in scientific journals, as well as authoring or co-authoring numerous textbook chapters and other scholarly works, focusing on the relationship between resistance to insulin action and a number of clinical syndromes. His research contributions have been widely recognized, and he has received the highest awards for research from the American Diabetes Association (Banting Award for Distinguished Scientific Achievement, 1988), the British Diabetes Association (Banting Memorial Lecture, 1990), and the European Association for the Study of Diabetes (Claude Bernard Lecture, 1994). In addition, Dr. Reaven has received the William S. Middleton Award for Outstanding Achievement in Medical Research from the Veterans Administration (1987), the Elliot Proctor Joslin Memorial Lecture (1990), the Nordisk-McGill Lecturer in Diabetes (1990), the Joseph Kirby Lilly, Distinguished Service Award (1995), Novartis Award for Longstanding Achievement in Diabetes (2000), the Sixth Linus Pauling Functional Medicine Award (2001), the Renold Medal of the American Diabetes Association (2002), the Frontier in Science Award from the American Association of Clinical Endocrinologists (2003), the National Institutes of Health Astute Clinician Lectureship (2004), Ellen Browning Scripps Medal (2004), The Dewitt Goodman Memorial Lecture, Columbia University School of Medicine (2004), the Priscilla White Lectureship on

Future Speakers:

Richard Gordon, ND

Meir Schneider, PhD

Patrick Quillin, PhD

About Smart Life Forum

Smart Life Forum, Inc. is a 501(c)(3) California nonprofit corporation whose primary mission is to provide credible health education to the public with an emphasis on optimal wellness, anti-aging medicine, and longevity.

Annual memberships in Smart Life Forum, Inc. and charitable donations are tax deductible to the extent allowed by law. For information on how to join or make a donation, please visit our website: www.smartlifeforum.org.

For questions, please contact Mike Korek at (650) 941-3058.

Metabolism, Joslin Diabetes Center (2005), the Presidential Lectureship at the Canadian Hypertension Society (2005), the Fred Conrad Koch Award from the Endocrine Society (2006), Honorary Doctorate, Faculty of Medicine, University of Southern Denmark (2006), and inducted as an honorary Member of the European Association for the Study of Diabetes (2007).

MAIN PRESENTATION

Insulin Resistance is the Link between Obesity and Metabolic Diseases

By Gerald Reaven, MD

Insulin-mediated glucose disposal varies more than six-fold in apparently healthy individuals, and the third of the population that is most insulin resistant is at greatly increased risk to develop a number of adverse outcomes, including cardiovascular disease (CVD) and type 2 diabetes. Approximately 50% of the variability in insulin action is related to differences in adiposity (25%) and fitness (25%), and the adverse effects of these two life-style variables on insulin resistance and associated abnormalities is increasing as populations become more obese and sedentary.

Given the enormity of the problem, it is important to differentiate between the risk of CVD and type 2 diabetes related to obesity, *per se*, as differentiated from the fact that the prevalence of insulin resistance and compensatory hyperinsulinemia are increased in overweight/obese individuals. Although a significant proportion of individuals in the general population considered to be insulin resistant are overweight/obese, not all overweight/obese persons are insulin resistant. Furthermore, significant improvement following weight loss in the metabolic abnormalities associated with insulin resistance is confined to the subset of overweight/obese individuals that demonstrate this defect in insulin action.

The fact that equally obese individuals can vary dramatically in their degree of insulin sensitivity, and that only the subset of overweight/obese persons that are also insulin resistant obtain significant metabolic benefit from weight loss, focuses on

two unanswered questions. In the first place, the cellular/molecular explanation for the diversity in insulin action in equally obese persons has not been defined, and preliminary evidence will be presented suggesting that a basic defect in those obese individuals that are also insulin resistant is impairment in the ability of adipose tissue cells to fully differentiate. As a con-sequence, there is a decrease in total fat storage capacity, leading to the ectopic deposition of excess fat.

Secondly, in view of the large number of overweight subjects likely to be insulin resistant, and thereby at increased CVD risk, and the difficulty in achieving weight loss in asymptomatic individuals, it would be useful to identify the subset of the overweight population that would benefit the most from weight loss.

In an effort to accomplish this task, we have evaluated use of the plasma concentration ratio of triglyceride/high-density lipoprotein cholesterol (TG/HDL-C); selected because: 1) a high TG and a low HDL-C are characteristic of insulin resistance; 2) both changes increase CVD risk; 3) the TG/HDL-C ratio is as useful a predictor of CVD risk as the total cholesterol/HDL-C ratio; and 4) the TG/HDL-C ratio is as good a surrogate measure of insulin resistance as the fasting insulin concentration.

A recent analysis of approximately 300 overweight/obese men and women suggests that a TG/HDL-C ratio >3.0 provides an approach with a reasonable degree of sensitivity and specificity in the effort to identify those overweight/obese individuals that are not only insulin resistant and hyperinsulinemic, but also have an atherogenic lipoprotein profile. As such, it seems to provide a simple, and clinically relevant, means to find those overweight/obese individuals at greatest risk to develop CVD and or type 2 diabetes, and thereby the patients that deserve the most intensive efforts to bring about and sustain weight loss.

Summary

1) Resistance to insulin-mediated glucose disposal, and its consequences, greatly increase risk of type 2 diabetes and CVD

2) The prevalence of insulin resistance is significantly greater in overweight/obese individuals, and the increased risk of CVD and type 2 diabetes associated with excess adiposity is primarily seen in the subset of overweight/obese individuals who are also insulin resistant

3) A basic defect contributing to insulin resistance in some obese individuals may be an impairment in adipose tissue cell differentiation, favoring entopic fat deposition

4) Given the difficulty in achieving weight loss, it seems reasonable to identify overweight/obese individuals that are also insulin resistant, the group that will benefit the most from weight loss, and target this population for the most intensive therapeutic efforts

5) The TG/HDL-C ratio may provide the means to focus attention on overweight/obese individuals who will gain the most from losing weight.

Suggested Reading

1. Reaven, GM. Role of insulin resistance in human disease. Diabetes 1998; 37:1595-1607.

2. Reaven, GM. The insulin resistance syndrome. Curr Atheroscler Rep 2003; 5; 364-371.

3. Reaven GM. Obesity, insulin resistance, and cardiovascular disease. Recent Prog Horm Res 2004; 59: 207-223

4. Reaven GM. Why Syndrome X? From Harold Himsworth to the Insulin Resistance Syndrome. Cell Metabolism 2005; 1: 9-14.

5. McLaughlin T, Abbasi F, Cheal K, Chu J, Lamendola C, Reaven G. Use of metabolic markers to identify overweight individuals who are insulin resistant. Ann Intern Med 2003; 139: 802- 809.

6. Farin HMF, Abbasi F, Reaven GM. Comparison of body mass index versus waist circumference with the metabolic changes that increase the risk of cardiovascular disease in insulin-resistant individuals. Am J Cardiol 2006; 98: 1053-1056.

7.McLaughlin T, Abbasi F, Lamendola C, Reaven G. Heterogeneity in the prevalence of risk factors for cardiovascular disease and type 2 diabetes in obese individuals: Effect of differences in insulin sensitivity. Arch Int Med 2007; 167: 642-648

8. McLaughlin T, Sherman A, Tsao P, Gonzalez O, Yee G, Lamendola C, Reaven GM, Cushman SW. Enhanced proportion of small adipose cells in insulin-resistant vs insulin- sensitive obese individuals implicates impaired adipogenesis. Diabetologia 2007;1707-1715.